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Dr. T. M. K. in

Letter No. 6

March 26, 1943

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Dear Doctor:

This letter is sent to you by the Surgeon Generals of the Army and Navy and the U. S. Public Health Service, with the cooperation of the American Medical Association and under the auspices of the Committee on Information of the Division of Medical Sciences of the National Research Council.

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The government of Germany has taken over all supplies of quinine, aloes, caffeine, gentian, iodine, bismuth and turpentine. In Holland the following substances may be sold only on prescription: insulin, iodine and its compounds, theobromine, theophyllin, caffeine and vitamin concentrates. In Germany drugstores are permitted to substitute in prescriptions for drugs which are short in the following five classes: (1) Cough mixtures with a basis of thyme, guaiacol or creosote and ammonium chloride; (2) Throat remedies with a basis of menthol, volatile oils, borax, benzocaine, and formalin; (3) Embrocations for rheumatic complaints with a basis of alcohol or oil; (4) Analgesics with a basis of phenacetin, acetylsalicylic acid, caffeine; (5) Laxatives and purgatives with a basis of liquid paraffin, vegetable or synthetic substances (anthraquinone derivatives), and phenolphthalein. The Pharmaceutical Journal of Great Britain (Feb. 20, 1943, p. 63) says: "It is laid down that the substitute must have a similar pharmacological action, must be in the same pharmaceutical form, and its price must not differ markedly from that of the original article. Several aspects of the position may be portrayed by this decree. For example, the references to aspirin, to phenacetin and phenolphthalein may indicate a shortage of phenol or of labour in synthesising the compounds; conservation of ammonia compounds for use in explosives or as fertilisers may account for the inclusion of ammonium chloride, while the reference to liquid paraffin cannot be unconnected with the German retreat in the Caucasus. Of special interest is the fact that permission is given to provide a substitute for benzocaine, for the original proprietary, anaesthesin, is always supplied in Germany, and it rather looks as though the factory that makes it - part of the big I. G. Farbenindustrie - is unable to manufacture sufficient to meet demands. All the information is of great interest to chemists here, especially in view of the fact, as we stated at the beginning of this note, that almost unlimited supplies of some of the preparations that are severely restricted in Germany are available in this country. People are still being urged through advertisements in newspapers to take, and keep on taking, aspirin; and any amount of liquid paraffin can still be purchased from the 'help yourself' counters of the bazaars!"

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The South African Institute for Medical Research has developed a repellent preparation to keep off attacks by mosquitoes. Coumarin and gum benzoin are the fixatives found to be best to enhance the repellent action of citronella. The preparation consists of citronella, 88 parts; coumarin, 7 parts, and gum benzoin, 5 parts. (Editorial, J. Royal Army Med. Corps, Jan. 1943, p. 31).

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Studies made in the National Institute for Medical Research, London, by Edward, Elford and Laidlaw and others showed that mice placed in an atmosphere in which the viruses of influenza or ectromelia had been sprayed developed infection from the air. Rapid and effective sterilization of atmospheres containing atomized particles of influenza and vaccinia viruses, and probably also of herpes simplex virus, can be obtained by ultra-violet radiation of wave-length 2537 Angstrom units. The British investigations confirm the work of Wells and others in this country. (J. of Hygiene, January 1943, article by Edward, Elford and Laidlaw, p. 1, and article by Edward, Lush and Bourdillon, p. 11).

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In the Department of Urology at Cornell University Medical College, Drs. J. W. Lord, Jr., Paul L. Stefko and Alexander R. Stevens found that the use of the straight vitallium tube with a holder permitted free fascial grafts to be used to bridge a gap in the ureter of an experimental animal. Free peritoneal and free bladder grafting failed because of a tendency to slough. The holder was necessary to keep the vitallium tube from slipping down the ureter. For surgery vitallium is at present the most innocuous metal available for constructing permanent rigid tubes. (J. of Urology, February 1943, p. 249).

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Lt. Col. Douglas B. Kendrick, Jr., M.C., reporting from the Blood Research Division of the Army Medical School states that the most important initiating and sustaining factor in the production of hematogenic shock is the loss of circulating blood volume. Therefore, the prevention and treatment reside primarily in the use of effective replacement fluids, such as whole blood, plasma, serum, or human serum albumin. Only when these blood derivatives are used early and in large quantities can they be considered effective therapeutic agents in the prevention of peripheral circulatory failure. (The Military Surgeon, p. 247). *March 1943,*

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From the Porto Rican Department Laboratory of the United States Army and the Division of Infectious Diseases of the National Institute of Health comes a statement by Col. V. H.



Cornell, Capt. G. J. Dammin of the Medical Corps of the U. S. Army and James Watt of the U. S. Public Health Service to the effect that sulfaguanidine can be used successfully in the control of infections due to Shigella paradysenteriae in troop concentrations under ordinary garrison life. In a small garrison in Porto Rico, 12 of a total of 97 men were in hospital with acute diarrhea, 1 was admitted on the day of investigation, 3 more the following day and 14 had a history of diarrhea during the preceding month. Thirty-two (32) were found positive for Shigella paradysenteriae, Flexner, "W" on the first examination. (Military Surgeon, March 1943, p. 253).

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G. Gordon-Taylor reviews in the British Journal of Surgery (Oct. 1942, p. 89) 600 operations on the abdomen for injuries encountered during two and a half years of the war. The series includes abdominal injuries received in naval warfare, civilians damaged by air bombardment and certain army casualties from the flotsam and jetsam of the "Dunkirk miracle" and the evacuation of northern France, and others from the Royal Air Force who were brought down during the epochal "Battle of Britain." These cases, representing various types of injury from numerous missiles, have been collected haphazardly. Despite the gravity of the wounds and the frequent association of multiple injuries, approximately 50 per cent of the patients with abdominal injury for whom operation was possible survived. The present military situation permits of no information as to the percentage of these casualties for which operation has been possible. The percentage of recoveries for injuries to the stomach, the small intestine, the rectum and the spleen is higher than in 1914-1918; the recovery rate for injuries to the large intestine is the same. Few patients with extensive intestinal resections have survived; the successful cases have been mainly dealt with by suture. Exteriorization resections of the large intestine have not figure prominently among successful resections of the colon. The employment of the sulfonamides, locally and orally, has proved of inestimable value. The liberal transfusion of blood or blood derivatives has permitted operation on a host of patients who would otherwise have died. The abdominal surgery of "total war" is really successful.

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Under the joint auspices of the American Medical Association, the American College of Physicians and the American College of Surgeons and under the direction of Dr. Edward L. Bortz, with a cooperating committee, arrangements are being made to extend graduate instruction to medical officers of the Army and physicians in areas around military installations. This will include lectures, clinics, demonstrations and other methods of teaching to keep them abreast of the advances of medical science. The



nation has been divided into twenty-four areas, and a working committee of three men--one each from the American Medical Association, the American College of Physicians and the American College of Surgeons--has been selected for each of the twenty-four areas. A list of twenty-two specialties has been drawn up, and a list of names of qualified experts who will act as national consultants is being prepared so that these men will assist in instruction in various fields concerned. The schedules of instruction will be submitted to the commanding officers of the Army corps areas and Naval districts for their approval so that the teaching may be conducted in hospitals. This project has aroused great enthusiasm among both military and civilian members of the medical profession.

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Drs. W. E. Jahsman, R. H. Durham and N. P. Dallis of Detroit have discussed incipient thromboangiitis obliterans in the Annals of Internal Medicine (Feb. 1943, p. 164), particularly with a view to its detection in young men of draft age who describe symptoms of peripheral vascular disease. One foot and leg were invariably more involved than the other. A single digit may sometimes have symptoms. Incipient stages of the disease may be recognized from the nailfold capillary picture together with the use of the device called the dermaterm, which measures the skin temperature response to cold and heat. In early stages there is diminution in vasodilatation of mild to moderate degree in at least one lower extremity. Later, with more actual occlusion, there is constant coldness of the skin as in arteriosclerosis obliterans and little or no temperature rise on exposure to heat. (Annals of Internal Medicine, Feb. 1943, p. 164)

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Drs. W. R. Galbreath and Edgar Hull report from Louisiana State University School of Medicine and Charity Hospital of Louisiana in New Orleans the results of treating 67 cases of bacterial endocarditis during the years 1938-1941. All of the patients died. In some there were temporary remissions in the temperature curve, but for the most part the disease pursued a course apparently unaffected by the treatment. One or more of the sulfonamide drugs was used in the treatment of 42 cases. The sulfonamides were not used in 25 cases. (Annals of Internal Medicine, Feb. 1943, p. 201)

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In an attempt to control infantile paralysis, Dr. Simon Stone of Manchester, N. H., tested particularly the use of vitamins B and E and artificial fever. He reports that the administration of thiamine chloride seems to exert a nonspecific beneficial influence on the patient's general condition and to lessen the severity of the paresthesias. It is said to be most effective when combined with artificial fever and given during the height of the fever. Vitamin E appeared to lessen the tendency to the development of fibrositis, increased muscle tone and possibly



favorably influenced muscle regeneration when the nerve supply was not completely destroyed. The report covers 12 patients seen in the acute or subacute stage of the disease. It is suggested that the experience is somewhat too limited to warrant the drawing of positive conclusions. (Journal of Pediatrics, Feb. 1943, p. 142)

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In his presidential address before the Society of American Bacteriologists in December, Dr. S. A. Waksman discussed the microbe as a biological system. He points out that in nature the great majority of microbes carry out their normal activities not in pure cultures but in mixed populations. This must be contrasted with the manner in which bacteriologists deal with hothouse varieties of bacteria, far removed from their naturally occurring progenitors. Considerable evidence has now accumulated to indicate that not only do microbes assist one another in creating favorable conditions or in preparing the required nutrients, not only do microbes compete with one another for the available foodstuffs, but that they exert a variety of other functions, whereby they influence the activities of other living systems. Microbes produce stimulating substances, the nature of which is not yet known, injurious substances, such as toxins and phages, and a variety of other agents which result in the destruction of some microbes by others. The physiology of an organism in pure culture is so markedly different from that of the same organism in a mixed population that one is often astonished to discover that an old friend, known and recognized by its specific reactions in given media, behaves quite differently in the presence of other organisms. A certain fungus, capable of decomposing cellulose, was found to prefer protein as a source of energy. In the presence of another organism which could not decompose the cellulose but could utilize the protein, the first microbe proceeded to decompose the cellulose. Aside from nutritive associations, there are other associations among microbes which may be designated as environmental, where one organism makes conditions favorable for the growth of another, as in the case of aerobes living together with anaerobes. The problem of vitamin requirements and vitamin synthesis by microorganisms has an important bearing on their growth. Some microbes are capable of synthesizing their own requirements for growth-promoting substances, whereas others require an additional supply of vitamins for growth and reproduction. When two or more microbes live together, one may become antagonistic to or exert an injurious effect on the other. Out of these studies have come such work as that on penicillin, tyrothricin, etc. Many organisms have been found capable of producing antibiotic substances when grown on artificial media. Dr. Waksman suggests among other possibilities: a) the domestication of microorganisms for disease control; b) the isolation of new chemotherapeutic agents for combating animal diseases; c) the utilization of the activities of the microorganisms for combating certain plant diseases. (Journal of Bacteriology, Jan. 1943, p. 1)

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In a paper read before the Society of American Bacteriologists in December, 1942, Stuart Mudd of the University of Pennsylvania discussed specific prophylaxis against enteric diseases. Typhoid fever, because of 1) the relative serological homogeneity of *Escherichia typhosa*, and 2) the long prodromal stage in which *E. typhosa* is in the blood stream and the reticulo-endothelial depots, has provided the most favorable opportunity among the enteric diseases for vaccine prophylaxis. The TAB vaccine currently distributed from the Army Medical Center may be considered satisfactory as a prophylactic against typhoid fever. The current Army Medical Center TAB vaccine produces a substantial immunity in human subjects also against heterologous strains of *Salmonella paratyphi*, *Salmonella schottmulleri*, *Salmonella enteritidis* and *Salmonella typhimurium*, but such vaccine seems relatively ineffective against members of the "Suipestifer" or paratyphoid C groups of organisms. Against coliform organisms containing *Salmonella* antigens and suspected of being etiologically related to diarrheal outbreaks, significant amounts of protective substances were found in the sera of human beings vaccinated with the Army TAB vaccine. Protection against the large residual group of paratyphoid fevers and *Salmonella* "food-poisoning" infections presents unsolved problems of considerable magnitude. The reactions to whole bacterial vaccines set definite limitations to the number of organisms and hence to the antigenic coverage which it is practicable to incorporate in whole bacterial vaccines. However, the chemical components at the surface of the cell-wall of the virulent bacterial cell, e.g., the smooth somatic antigens of *Salmonellas*, are the antigens with which antibodies must react to give antibacterial immunity. The possibility of obtaining these surface antigens as immunizing agents separately from the bacterial cell might well be explored. To be practical for use, immunizing potency and antigenic coverage would have to be adequate and toxicity not excessive. Work which has been done with the dissolved surface antigens of virulent pneumococci, *Streptococcus pyogenes*, *Hemophilus pertussis* and *Shigella dysenteriae* makes such an investigation seem to the author neither irrational nor so difficult as to discourage its undertaking, if adequate facilities are made available. The question of efficacy of vaccine against cholera has not been satisfactorily answered. Vaccine is, however, in current use and experienced men have been charged with investigations looking to maintenance or improvement of the quality of the cholera vaccine. The dysenteries are by many regarded as second in importance only to malaria throughout the tropical and subtropical areas. Of the dysenteries the bacillary types are far more common and more likely to occur in epidemic form than the amoebic type. Current reports are that relatively mild *Shigella paradysenteriae* infections are more prevalent than the more severe *Shigella dysenteriae* (Shiga) infections. Vaccines to increase antibacterial resistance against *Shigella* infections are not in use because of the excessive toxicity of such bacterial vaccines. There is urgent need to obtain the bacterial surface antigens in such form as to retain immunizing potency but not to have excessive toxicity. These might well be supplemented by Shiga toxoid. The question of the possible efficacy of cholera and dysentery bacteriophages as prophylactic or early therapeutic agents is in urgent need of solution. Neither proponents nor opponents of phage have as yet marshalled evidence from controlled



laboratory or field observations adequate to compel general conviction either that phage is valuable or is not valuable. During the cold season when respiratory infections are prevalent, household outbreaks are commonly observed in which some members of the household show mainly respiratory, some mainly gastrointestinal symptoms, and some both. The possibility that these infectious diarrheal affections may be due to a virus or other as yet unidentified causal agent would seem to be well worth investigating. (Journal of Bacteriology, Jan. 1943, p. 61)

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In a paper read before the Society of American Bacteriologists in December 1942, the nature and action of penicillin was discussed by Drs. Hobby, Meyer, Chaffee and Dawson of Columbia University. Penicillin, produced by the mold *Penicillium notatum*, was first described in 1929 by Fleming who observed that this substance inhibited the growth of many gram-positive organisms. Recently this substance has been extracted and has been found to be an unstable acid with the probable formula  $C_{14}H_{19}NO_6$  or  $C_{14}H_{17}NO_5 + H_2O$ . Although the substance has been obtained in crystalline form, routine preparations have been only partially purified due to the difficulty of extraction. The measurement of the activity of these preparations therefore has assumed considerable importance. The substance has been found to have an activity at least one thousand times greater than the sulfonamides, against a wide variety of gram-positive organisms, both aerobic and anaerobic. In vitro studies have shown that penicillin causes an actual decrease in the number of organisms, the bactericidal action taking place only if multiplication occurs. The substance apparently is not destroyed or absorbed from solution by the organisms and lysis of the organisms does not occur. The bactericidal action of penicillin is enhanced at times by blood and serum. This is in contrast to the effect of these substances on the action of the sulfonamides. Purified penicillin has been found to be inactive against all gram-negative organisms tested, and certain of the gram-negative organisms possess a substance which inhibits the action of the penicillin. The effect of this inhibitor, as well as the standardization of penicillin and its action in vitro, will be discussed. (Journal of Bacteriology, Jan. 1943, p. 65)

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In a review of the available knowledge regarding blood cholesterol, Dr. Sidney Weinhouse, in the Archives of Pathology (Mar. 1943), summarizes current information regarding the function of cholesterol in the body as follows: The ubiquitous occurrence of cholesterol in the animal kingdom suggests that this substance takes part in fundamental metabolic processes. Despite the number of functions ascribed to cholesterol, no single one has been established with certainty. The chemical similarity between cholesterol and the bile acids, the adrenal hormones, estrogen and androgen and vitamin D suggests several possible functions, but no physiologic relation has yet been



established. Cholesterol has been suggested as a "conditioner" of the skin, as an instrument for the conveyance of fatty acids in the body by exchange esterification with glycerides and phospholipids, as an insulator for the myelin sheath and as an important part of the structure of the cell membrane. The fact that cholesterol has a neutralizing action against hemolytic substances, such as snake venoms, saponins and bacterial toxins, suggests an important function, but again there is no proof that cholesterol in the blood or the tissues serves such a purpose. Its action probably is associated closely with that of the other lipids. Any change in the blood cholesterol is accompanied invariably by a comparable one in the phospholipid and glyceride components. Before the changes in the blood cholesterol in the presence of disease may be understood, considerable study will have to be devoted to the functions and the metabolism of cholesterol and the relations of this to the other lipids. Complete blood lipid analyses in cases of metabolic disease would be highly desirable; such determinations are long and tedious, however, and too complex for the average technician to master. Hence this type of investigation can be carried out at present only by expert chemists. The adoption of complete lipid analyses as a routine hospital laboratory procedure must await the discovery of better and simpler methods. Reliable and simple methods for the determination of free and esterified cholesterol are available. Coupled with a knowledge of the normal level and the changes to be expected under physiologic conditions, blood cholesterol values may contribute greatly in the diagnosis of disease. One reason for contradictory reports is the frequent employment of so-called clinical methods of analysis, which are grossly inadequate with respect to completeness of extraction or analytic precision. A detailed criticism of each study is, however, far beyond the scope of this review. Doubtless better agreement will come with more general adoption of reliable analytic procedures. Another source of conflict is more apparent than real; that is, conclusions often have been based on observed differences within the order of magnitude of the experimental error of the method employed. (Archives of Pathology, Mar. 1943, p. 438)

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Facial palsy may have far-reaching psychologic, social and economic consequences. Dr. Karsten Kettel of the Fredericksborg County Hospital, Copenhagen, Denmark, reports 264 cases subjected to reexamination (Archives of Otolaryngology, Mar. 1943). These were cases of otitic origin in which complete paralysis developed in immediate association with radical mastoidectomy and labyrinthectomy. Most serious is the absence of function in the oral branch of the facial nerve, which disfigures the patient. He states that such facial palsy has a grave prognosis, the paralysis of the mouth remaining permanently in more than half of the patients. He feels that bad results can be improved by surgical intervention. Complete paralysis produced by removal of the promontory wall may be due to severance of the facial nerve or to mere slight touching of the naked nerve. He says that decompression and inspection of the nerve are absolutely indicated if a patient has complete facial palsy in immediate connection with radical mastoidectomy or labyrinthectomy.



thectomy. Whether suture or grafting is to be done is dependent on the condition found. A fistula on the canal of the facial nerve indicates decompression, as the osteitis has crept into the canal, and consequently the diseased tissue must be removed. By waiting 72 hours, superfluous operations can be avoided, confining active surgical intervention to the cases in which the faradic response is lost, but action should under no circumstances be postponed longer. If facial palsy develops after an interval, the prognosis is far more favorable. If the palsy is due to pressure of packings, it will disappear when these are removed. If, however, one suspects hemorrhage in the canal of the facial nerve as the cause of the palsy, the case should be followed closely by faradic testing. (Archives of Otolaryngology, Mar. 1943, p. 303)

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Dr. Horace E. Mitchell of Lakewood, Ohio, reviews in the Archives of Otolaryngology (Mar. 1943) the treatment of victims of poison gas with special reference to the use of the bronchoscope. In case of mass casualties from asphyxiant gas poisoning, no doubt it would be impossible to use the bronchoscope in many instances. But the instrument certainly should have a prominent place in the plans and preparations for meeting such an emergency, and it is the duty of otolaryngologists to acquaint other members of the medical profession with its life-saving potentialities. As otolaryngologists we have a grave responsibility in the management of gas casualties because the most prominent symptoms of all types of gas poisoning are related to the upper and the lower respiratory tract. (Archives of Otolaryngology, Mar. 1943, p. 371)

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Apparently reticulation in relation to the number of pneumococci in the sputum is an important prognostic sign in type III pneumonia. Drs. A. W. Frisch, A. E. Price and G. B. Myers, Wayne University College of Medicine, say that the microscopic examination of sputum from patients with pneumonia has revealed that type III infections are distinctly different from those due to other pneumococci. The outcome of type III pneumonia was correlated more closely with the presence or absence of a fibrin-like reticulum in Wright-stained smears of sputum than with the number of organisms in the oil immersion field. The reticulation appeared to originate from the capsules of the interdispersed pneumococci and was subsequently identified as capsular polysaccharide. In a study of 114 cases the fatality rate was 79 per cent when reticulation was present and only 7 per cent when it was absent. The fatality in reticulated cases was uniformly high, regardless of the number of pneumococci in the sputum, the blood culture, the leukocyte count and the extent of the consolidation, but was partially influenced by the factor of age. Sulfapyridine and sulfathiazole were found superior to serum and sulfanilamide in the treatment of type III pneumonia because they prevented the formation of reticulation and reduced the fatality rate in reticulated cases from 100 to 67 per cent. (Journal of Clinical Investigation, Mar. 1943, p. 207)

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The dangers of the unwise use of tourniquets caused Mr. R. Watson-Jones, of the Liverpool Royal Infirmary, to suggest reconsideration of the question as to whether tourniquets are ever necessary in first aid work. He states that men do not bleed to death from complete severance of an artery, since control is effected by arterial spasm--even more effectively than by tourniquet. In his opinion limbs and lives are being lost by leaving tourniquets in the hands of unskilled first aid workers. He advises that they be removed from first aid equipment and that ambulance men be taught the methods of pressure bandaging. (Journal of Royal Institute of Public Health and Hygiene, Mar. 1943, p. 56)

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Dr. Melville Mackenzie, principal regional medical officer, Ministry of Health, in Great Britain, says that the lives and health of millions in Europe as well as the physique and welfare of a generation to come depend on four principal problems in postwar relief: provision of food, supply of medical necessities, control of such diseases as typhus, malaria, tuberculosis and dysentery, and the reestablishment of the medical, hospital and public health services in each country. (Journal of Royal Institute of Public Health and Hygiene, Mar. 1943, p. 57)

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About 40,000 men have taken the courses in cookery given by the British Army Catering Corps Training Centre at Aldershot, which is claimed by the British Army to be the largest and best equipped school of cookery in the world. There are also 100 emergency cookery training centres at which both men and women receive instruction. (Journal of Royal Institute of Public Health and Hygiene, Mar. 1943, p. 60)

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The occurrence of 13 cases of typhus in Eire (12 in Donegal and one in Kerry) in 1940 are reported by the health department there. The disease appeared to be spread by itinerant tinkers. An emergency order has been passed requiring detention and isolation, under a warrant, of any persons considered to be a probable source of infection with any disease until a medical officer certifies to the contrary. Germany had nearly 4,000 cases of typhus during the first nine months of 1942, according to a statement made in the League of Nations report. No cases of typhus occurred among the civilian population in Germany in 1939; there were six cases in 1940; 395 in 1941. When the number rose to nearly 4,000 in the first nine months of 1942, the Germans ceased to issue figures. (Journal of Royal Institute of Public Health and Hygiene, Mar. 1943, pp. 63 and 65)

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Recently Drs. D. N. Silverman and A. V. Friedrichs reported a study of some 700 bacteriologically proved cases of bacillary dysentery or *B. dysenteriae* infection of the bowel. The latter term is reserved by the authors for those persons chronically infected with the bacillus of dysentery in the absence of diarrhea or the classical syndrome of dysentery. The responsible organism in the cases of dysentery observed by Silverman in a previous report was the *B. flexneri*. At a later period the predominant organism was found to be the lactose fermenter of Duval. At present the cases show increased virulence and more frequent incidence of complications, the predominant strains being those of *B. shigae* and of *B. flexneri*. Although these observations are confined to the New Orleans area the disease shows a definite tendency, as predicted by Silverman in an earlier report (1926), to become endemic in many states of the Union. This prophecy has been borne out by the reports of cases from the states of New York, New Jersey, Illinois, California, Vermont, Missouri and Virginia. The authors advance the concept that arthritis, myocarditis, vascular dysfunction and even obstructing spasm of the colon as seen in chronic dysentery are probably manifestations of protein hypersensitiveness to the bacillary dysentery infecting the patient. Silverman treats such manifestations as allergy by desensitization of the patient with autogenous vaccine. It has not been generally appreciated that these infections may cause deeply penetrating lesions in the bowel with consequent perforation. A person with bacillary dysentery infection of the bowel in a period of remission, following treatment or without treatment, is always a potential victim of this most serious complication. The problem posed by the increase in incidence of bacillary dysentery is pertinent to the aggregation of great numbers of men in the different camps and various communities. The authors believe that the possibility of the spread of this infection from a local community to one of the camps is great. Close vigilance should be observed; should a case of dysentery be found, the patient should be isolated and every effort be made to prevent the spread of the disease. (New Orleans Medical and Surgical Journal, Mar. 1943, p. 401)

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Dr. H. Schrank, surgeon in the German Army, discusses in Zent. f. Chirurgie, Oct. 3, 1942, p. 1596, surgical experiences in a divisional field hospital in the Russian campaign. According to the Bulletin of War Medicine (Feb. 1943, p. 305), he draws attention to the high incidence of limb wounds as compared with other wounds.

As a primary method of fixation, splints have a great advantage, particularly in the winter, when they can be applied without removing the clothes. At the field hospital the splints are often replaced by plaster of Paris; but where there are large wounds a Braun splint with skeletal traction is preferred; it can be combined, if necessary, with plaster treatment. Every wound is infected, and all shell splinters must be removed and side tracks of the wound opened up. Even simple perforating bullet wounds often suppurate later.



To diagnose gas gangrene sufficiently early for effective treatment, it is necessary to be on the alert for premonitory symptoms. The imminence of gas gangrene should be suspected when there is sudden severe pain in the neighborhood of the wound, with a rising pulse rate and a quick decline in the patient's general condition. Gas gangrene is more common in the warm than in the cold months. A high incidence of secondary hemorrhage in the Russian campaign has necessitated a greater number of amputations for gas gangrene than formerly. Prontosil and sulfapyridine appear to have been useful in a few cases, but, in the author's experience, the serum treatment of established gas gangrene has never given any good result. Warning against the part played by tourniquets in the production of gas gangrene is given.

Chest wounds are next most common to limb wounds in occurrence, and experience has shown how important it is to keep the patients for a sufficiently long time in one place. Many of them get well, including cases of simple through-and-through bullet wounds, open pneumothoraces, tension pneumothoraces, hemothoraces and even cases where there are two perforations of the chest wall. Early closure of chest wounds is important. Sometimes pressure from within will cause a recently sutured wound to reopen. Better results have been obtained since early drainage and suction were introduced. With this technic even secondary suturing has given good results.

For the relief of tension pneumothorax and hemothorax, a puncture of the second or third space in front is recommended. Even when the cases are proceeding favorably they are best kept for 14 days. During the first few days the administration subcutaneously every eight hours of 0.01 gm. of Eukodal has proved useful. Inter-current pneumonia developing during the second week after a chest wound has often reacted well to sulfapyridine.

The majority of abdominal wounds, excluding those of the pelvis and bladder, prove fatal; pelvic and bladder injuries have a better outlook. In field hospitals, therefore, when work presses, the good of the many must be put first and abdominal cases must be left if their being operated on would mean that a number of lesser wounds with a better outlook were not attended to. However, there have been a few encouraging results from operating upon abdominal injuries after 8-10 hours' interval has elapsed since wounding. In one case, where a small perforation of the small intestine had been temporarily closed by adhesions, operation after 48 hours was successful. Where the colon is damaged, a colostomy is recommended.

Many operations have been performed under local anesthesia; when general anesthesia has been required, chloroform has been used extensively, because of the danger from fire with ether. Carbide lamps have been used as sources of illumination. The lighting and heating of field hospitals in the winter has proved a difficult problem.

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In the Transactions of Kuibyshev Military Medical Academy of the Red Army, as reported in the Bulletin of War Medicine (Xx Feb. 1943, p. 306), S. N. Youlsev discusses the use of air-transport to evacuate casualties from the divisional to the base reception hospitals during the Russian campaign in Finland in 1939-40. Evacua-



tion from the front-line to the divisional hospitals was by land, but it was found that the use of air transport from thence to the base hospitals reduced the time of the journey to 3-5 hours, and thereby proved very helpful in selected cases.

Youlaev agrees with Hippke (Bull. War Med., Jan. 1941) that shock and pneumonia are contra-indications to air-transport and that patients should not be transported by air during the "post-operative period" unless this should be obligatory for military reasons. In considering the suitability of cases for evacuation, regard must be had to the situation and seriousness of injury, the distance of evacuation, the altitude at which the airplane is to fly, and the particular risks of anoxemia, abdominal distension and airsickness. Oxygen should always be provided in adequate quantity, for administration when indicated. The aircraft used were equipped with stretchers, blankets, chemical hot-water bottles and outfits for giving oxygen. A surgeon always travelled with the casualties, and thermos flasks of sweet tea and coffee were provided. The altitude of the flight did not exceed 800 metres, and often it was no more than 300-400 metres. The speed did not exceed 200 km. an hour. In the airdrome where the evacuation route ended, there was a casualty reception station, consisting of heated tents containing up to 40 beds. The medical personnel comprised a chief surgeon, three assistant surgeons and four orderlies. Cases requiring urgent surgical treatment on arrival were dealt with here or at the main medical post of the airdrome, which was well staffed and equipped. At the casualty reception station the patients were given hot drinks and food before being taken by road from the airdrome to the base hospital. In the author's experience, no serious complications due to air transport were met with.

In addition to its uses for transferring wounded to the base hospitals and to specialized units, Youlaev mentions like Hippke that air transport is valuable for evacuating cases of infectious diseases--e.g., typhoid and dysentery--where land transport would be slow or difficult.

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German official sources draw attention to a disease affecting their armies in Russia. This "plague of Eastern Europe," it is stated, is called "Volhynian fever," Volhynia being a part of the Western Ukraine, and it was ~~widely~~ dreaded by the soldiers in the east during the last war, who styled it "trench fever." It is an epidemic disease, the prevention of which is of the greatest importance for the conduct of the war in the east. The symptoms of this disease vary, but there are always violent attacks of fever which are accompanied by strong pains in the legs and also in other limbs and in the head, etc. From the beginning of the campaign in the east, German medical research has been striving with all means to combat this mysterious disease. These experiments have now met with success and have given surprising results, for it has been shown that this "Volhynian fever" is related to malaria. When this plague of Eastern Europe was treated with the well-known German malaria cures "Atebrin" and "Plasmochin," in almost all cases the fever and pains disappeared. (DNB for Europe, Jan. 15, 1943)

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According to Sept-Jours, Jan. 10, 1943, among illnesses due to food shortage, carotinemia has appeared, and scabies increased. The appearance of wood alcohol presents a danger. The greatest menace due to restriction is tuberculosis. "It is estimated there were 550,000 dangerous cases of tuberculosis in France before the war. They number 1,000,000 today... Those affected are mostly men and women between 50 and 60, whose old lesions decalcify and release bacilli owing to lack of calcium, contained in milk, and lack of meat and fats." The editor's note states: "Carotinemia is a disease which has recently appeared in France and is due to eating too many vegetables of the carrot type."

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Das Spital, No. 62, Bucharest, 1942, contains an article by Drs. Musat and Rosu on the aspects and possibilities of surgery in field hospitals, stating inter alia that in the first six months of the war the authors, working in a field hospital in the front line, had cared for 14,000 wounded, 4,000 of which had been operated on. The majority of the wounds were due to incendiary shell (bomb?) splinters (Brandgranatsplitter). Wounds caused by air-bomb splinters and heavy air machine-gun bullets were very serious. Stomach bullet wounds were especially dangerous, the mortality rate being 65-70 per cent.

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